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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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DISEASES of the NERVOUS SYSTEM

(PUBLISHED MONTHLY)

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

The State Mental Hospital -- An Educational Center*

LEWIS BARBATO, MAJOR, M.C.**

Probably the most pressing need today is education—not merely formal education represented by the acquisition of knowledge—that is static; but an education in which knowledge is mobilized and exchanged and out of which emerges understanding.

The knowledge may be in any field—chemistry, physics, mechanics, industry, astronomy, as long as it concerns itself with man. In our environment, man is the common denominator and center of all activities, giving meaning to all things. It is man who wills, aspires, drives, invents and creates; who shapes the present and gives direction to the future. It is essential, therefore, that much of education must revolve around him; his growth and development, his needs and cravings, his loves and hates, his social relationships and responsibilities, and his physical and mental health. This really becomes an education in living.

Since man is gregarious and lives in communities, the problem of education is not simply a matter of educating one individual, nor in imparting knowledge to each of a large number of persons collectively; but rather, it is a problem of what shall be taught and how it shall be taught so that all educational efforts, vocational, avocational, social, recreational, and physical, are coordinated and directed toward a common goal in promoting the health and happiness of the individual, as well as that of the group. Solution of this problem takes on increased importance in the program of postwar rehabilitation and "reconversion" of millions of returned soldiers and civilians, who at present are living in "abnormal times."

The responsibility for, and the coordination and direction of such a tremendous program of education in living requires a center exerting efforts and influence reaching all levels and phases of community life, with trained personnel or "faculty," able to understand people and human relationships. The state mental hospital is the logical center for such an educational program. As a matter of fact, as Dr. Fellows[1] remarked at the last meeting of the Texas Mental Hygiene Association: "The public is looking to psychiatry and to our neuropsychiatric institutions for the solution of these pressing problems, both for the treatment of patients requiring institutional care and for a workable program of prevention and mental hygiene that will extend into our cities and to the remote areas of our population."

There are those, however, who believe that the sole function of a hospital is the care of the sick. This is not the modern concept of hospital function. It has been urged repeatedly by Dr. Samuel Hamilton, Mental Hospital Advisor of the Division of Mental Hygiene, U. S. Public Health Service, that the mental hospital become the hub of community mental health work and teaching as well as an institution for the care

* Read before the Institutional Section at the Austin Mental Hygiene Meeting, Austin, Texas, March 8-9, 1945.

** Chief Neuropsychiatric Service, Fitzsimons General Hospital, Denver, Colorado.

of the sick. Who is better equipped or qualified to teach principles of good mental health? Where can better clinical material for study, research and perfection of therapeutic and preventive techniques be found?

The progressive state mental hospital must, therefore, provide, as one of its chief functions, a program of education and training for both the sick and the well, including its own personnel. To have meaning, such a training program must be coordinated with therapy and clinical work under the direction of a clinical director.

For purposes of discussion, the material will be considered under two main headings: (I) Intramural education for personnel and patients. (II) Extramural or public education.

I. Intramural Education

(1) *Psychiatrists*: Even prior to the war only seven institutions met the accepted standard of a physician for 150 patients; most hospitals averaged one physician to 250-300 patients.[2] The war emphasized the shortage of psychiatrists. There are less than 4,000 members of the American Psychiatric Association and only half of these are certified by the American Board. Fifty percent of the certified men are in the armed services. Colonel Ebaugh[3] has reported that in the Eighth Service Command, only 15% of the officers assigned to neuropsychiatry were certified and 30% had little or no training in neuropsychiatry. With the large number of men already discharged from the service for neuropsychiatric reasons and the increased needs of the civilian population, it has been conservatively estimated that 10,000 to 20,000 additional trained psychiatrists will be required. Furthermore, it has been calculated[4] that an increase of approximately 30% in the number of residencies in psychiatry and neurology will be required after the war to meet the requests for such training by men now in the service.

Existing facilities will not be able to take care of the comparatively small number of men (400) in the armed services who desire postwar training in neurology and psychiatry,[4] to say nothing of the additional 10,000 to 20,000 psychiatrists for whom psychiatric training facilities must also be provided. It is evident that additional residencies must be established. In most instances, existing facilities approved for training cannot be expanded to care for more residents. New training centers are required. The state mental hospital with its large population of clinical material is most readily adaptable for use as a graduate training center. Unfortunately, most state hospitals do not provide opportunities for clinical study and research under trained guidance and supervision. Only a few can fulfill the requirements for training established by the American Board of Psychiatry and Neurology. However, Ebaugh and Rymer[5] have pointed out that state hospitals can improve and expand their facilities by affiliation with medical schools or general hospitals and by developing a qualified staff. Where the institution is strategically located near a medical school, senior clerkships in psychiatry could be furnished. As a matter of fact, Ebaugh and Rymer[6] report that twenty medical schools now use state hospitals to varying degrees in their psychiatric teaching; eight of these also offer resident clerkships of varying lengths. Internes and residents in general hospitals and medical schools can augment their training and improve their understanding of psychosomatic medicine by such an affiliation arrangement with a state hospital accredited for training in psychiatry. This teaching relationship with other hospitals and medical schools will benefit medicine and surgery, as well as psychiatry, by developing in the medical and surgical resident a better appreciation of mental aspects and maintaining in the psychiatrist a healthy respect for the physical.

Moreover, the state hospital need not restrict its training activities to junior physicians or residents in psychiatry. It can offer opportunities for training in surgery, internal medicine, tuberculosis and pathology if the hospital were a hospital in fact as well as in name and included among its resident and consulting staff, qualified internists and surgeons.

(2) *Nurses*: In 1940, there were only 4,252 graduate nurses employed in the state mental hospitals of this country.[7] It is estimated that approximately 35,000 nurses

will be needed in the postwar period in mental institutions. The task of training psychiatric nurses is no easier than providing psychiatrists. Those who have studied this problem report that little can be done to remedy the situation until more trained personnel is available to direct, instruct and supervise the teaching. This need is being partially met by the establishment of university-controlled graduate courses in psychiatric nursing. Thus far, programs are in operation at Catholic University of America, Washington, D. C., University of Minnesota, University of Washington, Ohio State University, and Western Reserve University. This program is described in detail by Laura W. Fitzsimons, R. N.[7] Suffice it to say here that in this program the university affiliates with a mental hospital for use of clinical assignments and that students who qualify may obtain scholarships under the provisions of the Bolton Act which is administered by the Division of Nursing Education, U. S. Public Health Service. All state hospitals could be greatly benefited by such an affiliation.

As important as post-graduate training is undergraduate training in psychiatry. This field is rapidly becoming an accepted part of basic nursing as it is a part of medicine. Unfortunately, existing facilities are inadequate to provide the teaching needs. It is important, therefore, that more state hospitals provide affiliation courses in psychiatry if these needs are to be met. The purposes of such courses are to acquaint the student with the causes and symptoms of and nursing in mental illness, and to develop a broader understanding of the psychological and emotional aspects of all forms of illness and an appreciation of the patient as a person.

If an institution is to be a hospital, nurses are indispensable. Just as the nurse needs psychiatry, psychiatry needs the nurse. The progressive administrator, making use of his own staff, can, without much difficulty, and by eliciting help from the nursing schools and volunteer psychiatrists from the community, organize a teaching staff which will meet the minimum requirements of the National League of Nursing Education and American Psychiatric Association.

Early in 1942, while Superintendent of the San Antonio Hospital, I submitted to the Board of Control plans and outline of a curriculum course in psychiatric nursing for undergraduate nurses based upon the requirements of the Committee on Psychiatric Nursing of the American Psychiatric Association. Several nursing schools in the San Antonio area were interested in the establishment of such a course at the San Antonio State Hospital because those which provided any psychiatric training did so by affiliation with out of town and even out of state institutions. Shortly after these plans were approved, I was called to active military duty before they could be put into operation.

In 1943, stimulated by a need for more nursing personnel on the Neuropsychiatric Service at Fitzsimons General Hospital, and the desire to extend psychiatric training further, a plan was worked out with the approval of the Commanding General of the hospital by Lt. Col. C. H. Barnacle, then Chief of the Neuropsychiatric Section and myself, with the Chief of the Nursing Service at Fitzsimons General Hospital, the Superintendent of the Nursing School at St. Joseph's Hospital in Denver, and representatives of the State Board of Nurse's Examiners for the establishment of an affiliation course in psychiatric nursing. This course was similar to the one planned for the San Antonio State Hospital and was patterned after the requirements of the Committee on Psychiatric Nursing of the American Psychiatric Association. The course covers a period of three months and includes all phases of psychiatric nursing with additional lectures on neurology, psychology, and occupational therapy. Teaching methods consist of lectures, discussions, clinics, demonstrations, participation in staff conference and ward rounds, case study, personality outline study, planned ward teaching with assignments of special problems and outside reading. The teaching staff is composed of a nurse assigned full time, who, in civilian life, was an instructor in psychiatric nursing at the University of Minnesota, the various members of the psychiatric staff,

a clinical psychologist, a psychiatric social worker, an occupational therapist and a wardmaster.

This was the first such course ever organized or established in an Army Hospital. Since the inauguration of this course at Fitzsimons General Hospital in December, 1943, other army service commands have followed suit. In May, 1944, the course was modified so as to serve as a "refresher course" for post-graduate army nurses from the 7th Service Command and to teach them methods of closed psychiatric ward administration. To date we have given training to 54 undergraduate students from St. Joseph's Hospital in Denver, 3 cadet students from Fitzsimons General Hospital and 12 army graduate nurses.

We found that the presence of student nurses has helped in the care of the patients by making possible a more varied and complete treatment and reconditioning program, improving morale and encouraging interest in learning and improving techniques on the part of enlisted and civilian attendants. Although our interest in the teaching program was selfish, we feel that we are filling the need of the students for psychiatric training.

(3) *Attendants*: In the modern psychiatric hospital trained attendants are no less important than nurses because they likewise play a definite role in therapy, influencing to a considerable degree the progress and recovery of the patient. Here again, therefore, the hospital has a responsibility in education. It is difficult to conceive how a hospital can provide good care for its patients unless it has a definite training program for its attendants.

A course for attendants should be practical and given in laymen's language with as little technical terminology as possible. It should provide through a series of lectures, ward conferences and demonstrations, instruction in such topics as: Orientation to the hospital, psychiatry and the mentally ill; description of the various clinical reaction types; proper attitudes towards and understanding of the mentally ill; precautions and management of psychotic patients; and principles of therapy and mental hygiene. In addition, there should be training in ward management and housekeeping, general nursing techniques and active participation in such "reconditioning" procedures as occupational, recreational and diversional therapies.

(4) *Psychologists*: Recent trends indicate that the clinical psychologist is being accepted as an integral part of the "psychiatric team." In most, if not all, mental hygiene clinics, the various neuropsychiatric services of army hospitals, and in many progressive state institutions, we find that the clinical psychologist is a valuable member of the staff. His value becomes apparent in any situation requiring counseling or objective studies which contribute to therapy, vocational guidance or job placement.

Unfortunately, however, the growing needs in civilian and state institutions for psychologists experienced in clinical work cannot be met because of the shortage of such personnel. To meet these needs some type of internship training is necessary. Here again, the state hospital is the logical place for such training. Under a plan operating successfully in a number of institutions graduate students of psychology are assigned to the state hospital for clinical training by an affiliation arrangement with a university. The army makes use of a similar method of training by assigning graduate psychologists to the various neuropsychiatric services of army general hospitals for a three-month period in clinical work under the guidance of psychiatrists and trained clinical psychologists.

(5) *Psychiatric Social Workers*: The merits of a competent social service department in mental hospitals are too well known and recognized to require discussion. Everyone will appreciate the value of the social worker in obtaining social histories, in liaison between the family at home and the patient in the hospital, and in family placement and "after-care" of patients returned to the community. The social worker by reason of close contacts with the family and the patient becomes a particularly valuable member of the "psychiatric team."

Although it may appear that there are a large number of social workers in most com-

munities, a brief examination of their qualifications would reveal that only a small percentage are qualified by training and even smaller fraction have had any appreciable actual experience in dealing with psychiatric patients. Here again, the state mental hospital has the obligation to throw open its doors and provide training and clinical experience for graduates of social service schools, either by affiliation or on an individual basis.

(6) *Other Affiliate Training Possibilities*: What has been said of physicians, nurses, psychologists and social workers applies equally to graduates of schools of occupational therapy, physical education and dietetics. Also, students of agricultural schools could benefit from a similar affiliation by a period of assignment on the hospital farm. As a matter of fact, the only limitations to any kind of university or school association would be one of trained supervisors but much of this difficulty could be met by a careful planning.

(7) *Lay Employees*: The lay employees of a mental hospital, whether they be dining room girls, laundry workers, painters, carpenters, mechanics, engineers, dairymen, farmers, gardeners, etc., form a group which is in a unique position to do much to improve or retard the recovery of patients. Actually, these individuals, working under careful guidance and supervision in the industrial therapy program for the convalescing patient, function as individual therapists. Mishandling of the patient at this stage in his treatment by an ignorant or unsympathetic employee can retard his return to productive activity in community life. It is essential, therefore, that they be given orientation lectures in psychiatry with particular stress upon the understanding of the psychotic patient and his management in the various industrial assignments during the convalescent period.

No less important from the hospital point of view is the welfare of the employee himself. The hospital has just as great a responsibility in keeping people well, that is preventive mental hygiene, as it has in giving treatment. This applies to its own employee personnel as much as to the community. Too often, the mental hygiene needs of the state hospital employee are supplied about as well as the proverbial shoemaker's children are provided with shoes. The hospital employee, like the unhappy man at sea on a raft with water all around him but none to drink, is surrounded with mental hygiene principles but usually receives little consideration in this regard. As in any job, to be efficient and useful, the employee must feel that he is appreciated and must derive certain satisfaction other than monetary from his work; a feeling of contribution to the therapeutic efforts in the recovery of patients, and an opportunity to better himself in his job or in the scheme of the hospital community.

The opportunity for advancement can be met by a well thought out job skill training program, by long range planning for future replacements and additions as well as planning to meet immediate needs. Since it would be impractical for a state hospital system to establish pre-service training schools for such a wide variety of jobs, the training program must be largely in-service training of personnel already employed. Opportunities must be created and offered for either on the job teaching during duty hours or for more formal, organized training after hours. This latter type of training could easily be provided by the hospital through an affiliation arrangement with trade or opportunity schools in the community. Such in-service training would do much to improve the morale of the employee as well as to qualify him for a position requiring greater skills or increase his efficiency in his assigned job.

It must be kept in mind that the lay employee, like the remainder of the staff, is a very important agent in developing and maintaining public good will, and he can do much to spread the gospel of preventive psychiatry. As in the case of a family, the reputation of the hospital depends largely upon the individual members of the staff, lay as well as professional.

(8) *Patients*: Dr. Burlingame[8] in his annual report of the Institute of Living for the year ending March 31st, 1944, wrote: "Surely the time has come when leaders in

psychiatry and those in authority in psychiatric and educational institutions will realize that there are no sharp lines between teaching the sick and the well; that both the sick and the well should be exposed to the same types of training, to the degree that they can take it, and that education and re-education is a living, dynamic process which cannot be cut up into neat sections or parcelled out in varying-sized lumps." Quoting further: "We will . . . bring into our institutions and into our hospitals the revitalizing forces of vocational and avocational, social and recreational, and physical education and we will offer to all patients the content of this vast field of learning, only modifying our techniques to meet the abilities and needs of the individuals."

This viewpoint of education as a part of therapy is well established in the army physical and neuropsychiatric reconditioning programs. With a little interest, initiative and planning, educational classes in academic or diversional subjects can be organized at the mental hospital, utilizing either suitable patients as instructors or employing qualified instructors as a part of the occupational therapy program.

Education for patients must include training in fields of vocation, in new ones or retraining in old ones. This aspect could easily be carried out through an organized industrial therapy program, utilizing such industrial activities as carpentry, painting, mechanics, boiler operations, dairy, farm, flower and lawn care, etc., and making use of properly trained lay personnel employed in these various jobs as instructors.

In addition to these training procedures, the educational program should provide for personality education and re-orientation through the use of group psychotherapeutic methods. This approach should utilize various projection techniques, special movie training films, slides, charts, hospital paper, drama, music, common interest discussion groups and orientation lectures on current events, making use of radio, maps, newspaper clippings, magazine articles, etc. In addition to these measures, study of more personality-determined factors can be developed through group discussions in which a team, of psychiatrist, clinical psychologist and psychiatric social worker, conducts a panel, as it were, with patients participating as members and the staff acting as moderator. In such a therapeutic situation, discussions would be directed along lines having as their aims: (1) Development of insight and understanding into the nature of the illness and the role of emotions in the production of symptoms; (2) desensitization of the individual towards his illness; and (3) modification of unwholesome attitudes the patient may have in regard to returning to community life with the establishment of new and healthy orientations to life. The goal of patient education must be prevention as well as curative.

II. Extramural Education

Extramural training comprehends education for the general community, for various special groups, relatives and friends of hospital patients and out-patients. These represent not only potential sources of "more psychiatric business" but they also make up a substantial part of the environment into which the discharged patient will return. These individuals require enlightenment on the facts of modern psychiatry; that much of the thinking about mental illness prevalent among the laity is based on misconceptions and misinformation; that mental illness can be prevented and cured; that heredity *per se* plays little or no significant etiological role; that anyone, no matter how stable or well integrated he may be, may develop a mental illness under the proper situations of stress; and that such illness, like any other illness, is no disgrace or shame. There can be no doubt that these groups need the kind of education a mental hospital has to offer.

There are many ways in which this education can be spread. Professional groups of physicians, lawyers, educators, clergymen, social service workers and civic groups and relatives, etc., can be invited to tour selected parts of the hospital and to hear lectures on mental hygiene. Selected members of the staff should be assigned to this work of spreading the gospel. As Superintendent at the San Antonio State Hospital

and in my present capacity at Fitzsimons General Hospital, I have found this task a pleasant and satisfying one.

Dr. Fellows[1] reported a novel experiment which offers many challenging opportunities and possibilities in public education and which to him proved a very gratifying experience. He invited a group of ministers to live at the state hospital with the staff for a two-week period attending seminars, lectures and demonstrations, sitting in on staff conferences and conferences with relatives, and taking histories on selected patients. This proved to be an extremely valuable undertaking for, not only did the ministers receive considerable education about mental hospitals and their problems and about mental illness, but they each formed an extension, as it were, of the "state hospital faculty," carrying the information they had gained to their respective congregations who otherwise would not have been reached.

As for mental hygiene and child guidance clinics, when personnel becomes available, no state can afford to be without these agencies of preventive psychiatry and out-patient care. Here again, the state mental hospital must assume a position of leadership. It must project its knowledge and trained personnel into the community to teach those individuals, particularly children, who are experiencing difficulty in adjustment and who represent potential casualties. Through this metastatic process of psychiatric extension by establishing mental hygiene clinics, the principles of education and prevention can be carried into every phase of community life, urban and rural.

With the large number of men being discharged from the Armed Services for neuropsychiatric reasons, and available Veterans Administration care being limited to few clinics and only 30 neuropsychiatric Veterans Hospitals, it is becoming increasingly apparent that some type of a state-wide network of clinics, as has already been organized in Michigan, is necessary. Whether through Veterans Administration or other Federal help, or alone, the mental hospital system of the various states and psychiatry in general have a moral obligation as well as a challenging opportunity to make good on its claims of responsibility in government.

Conclusion

I visualize the state mental hospital of the future as a great educational and rehabilitation center in which every phase of living is taught. I can aptly conclude with a quotation from Colonel William Menninger[10]: "Every psychiatric hospital has a moral obligation to act as a teaching center, in the sense that its attendants, its nurses, its therapists, its social workers, its physicians must be permanent students of psychiatry, and must present it and promote it as a scientific branch of medicine. It is their responsibility to present it to each other, to their own specialty groups, to physicians in other specialties, to the relatives of their patients, and—perhaps their greatest opportunity—to the community in which they live."

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Sickle Cell Anemia With Brain Involvements

A. L. SKOOG, M.D.
Kansas City, Missouri

Sickle cell anemia is a well defined disease entity, about which there is some knowledge but the scientific phenomena taking place is not adequately understood. It is essentially a disease of negroes. There are few cases reported in the literature in white peoples and many of these may be questioned. The author believes that all or nearly all cases occur in individuals with more or less negro blood. Possibly an infusion of negroid blood, four or five generations back, may be responsible for the sickle cell trait.

Mason[1] in 1922 first coined the term sickle cell anemia. However, cases establishing a definite clinical entity were reported in 1910 by Herrick,[2] in 1911 by Washburn,[3] in 1915 by Cook and Meyer;[4] and thereafter we encounter a rapidly increasing literature. Several varieties of irregular shapes for the erythrocytes were described many years earlier by Hayem,[5] Dresbach,[6] Sargent brothers,[7] and Langeron.[8] Cook[9] in 1930 placed on record the first case of sickle cell anemia with intracranial pathology. His patient was studied clinically and by means of adequate autopsied material. The tempo for such reports since that date has been stepped up somewhat with an increasing literature.

The literature now contains a few cases where clinical or postmortem material has been studied relative to involvements of the central nervous system. Such reports have been made by Arena,[10] Bridgers,[11] Hughes, Diggs and Gillespie,[12] Skoog[13] and others. The clinical record of a published case by Skoog covers a period of five years; and the report on the autopsy was demonstrated before the 1944 meeting of the Central Neuropsychiatric Association at Chicago. We believe that many cases, particularly in the earlier stages and with milder pathological changes in the brain and its coverings, are frequently overlooked. A closer clinical, neurological observation and spinal fluid studies would be indicated for suspected intracranial involvements.

Etiology

Sickle cell anemia may be defined as a malignant state involving primarily the red blood corpuscles, hemopoietic and hemolytic organs. Sicklemia is the benign state. It must also be borne in mind that sickle cells and other deformed erythrocytes in the blood stream and organs can be found in about 5 to 8 percent of all negroes in the United States. It is assumed that sicklemia has been previously present in all cases diagnosed as sickle cell anemia. Fortunately only a comparatively small percentage of sicklemias develop the malignant state. Just why an individual with sicklemia develops sickle cell anemia is unknown. Furthermore, many features of the modus operandi are not completely comprehended. A number of writers have correctly designated sickle cell anemia as a hereditary disease. Utilizing the Mendelian law for either sicklemia or sickle cell anemia we can consider the dominant characteristic.

Symptomatology

Most of the cases of sickle cell anemia are apprehended in younger people—under 35. However, no age seems exempt, there being cases on record diagnosed as early as the third month and as late in life as the age of sixty-seven. It is quite possible that the disease has gone unrecognized for a number of years. The sexes are equally involved. The disease is quite common in children. Certain milder developmental defects have been described but no one thing can be used as a characteristic diagnostic sign. Frequently there is a complaint of tiring readily. A variety of pains may be present, especially in the extremities suggesting rheumatoid states. Often there are severe pains, in various parts of the abdomen. In fact many unfortunate mistakes have been made by surgeons in operating for organic diseases in the stomach, appendix, gall bladder and other viscera. The abdominal wall would be closed without finding any operable disease, the correct diagnosis being

made later. It is well for every surgeon encountering negro patients to have in mind sickle cell anemia. Laboratory blood tests can establish its presence with certainty in a short time.

The spleen is greatly enlarged in a high percentage of the cases, particularly in the early stages. After a few years the spleen may atrophy to such a degree that at operation or autopsy the organ cannot be found. The liver too may be enlarged but not to the same extent as the spleen. Ulcers in the lower extremities, usually below the knees, are often seen. Scars over the anterior tibia may suggest previously existing ulcers. An anemic state of the skin is ofttimes observed. This pallor with a greenish yellow color of the sclerae is striking.

The bones frequently present pathological changes in this disease, the tibia and fibula being most commonly involved. The pelvic bones, ribs, sternum, clavicles and others may present pathological changes. A moderate amount of osteoporosis might be sought for by x-ray of suspected bones. However, it is in the skull bones where we encounter the most interesting changes. The striking "hair-on-end" state may be present in patients. When seen it is diagnostic in itself. Here is evidence of a long continued process of osteoporosis including a thickening of both tables and diploe. In fact the two tables are so fused that they cannot be outlined distintcly. Usually the process is bilateral and involves the frontal, temporal, parietal and occipital bones. The maximum thickness is usually at the vertex where it may measure four or five times that of the normal. A somewhat similar condition of the skull bones has been described in erythroblastic anemia. The "turmschadel" deformity of the skull has also been recorded.

Wherever there is the least suspicion of sickle cell anemia, the blood should be examined carefully. This definitely will show the correct diagnosis. The reduced number of red corpuscles may register as low as one to three millions and accounts for the pallor and the greenish yellow color. The sickled red corpuscle is a common deformity, but a multiplicity of bizarre alterations may be seen. The erythrocytes may be oat shaped, elliptical, multipointed, and considerably larger or smaller than normal. Nucleated reds, poikilocytes and polychromatic types may be present. Long filaments may project from the corpuscles. The hemoglobin reduction corresponds to the red cell destruction, but with a normal color index. The icteric index is usually high. The clotting time and white cells are normal. A casual or quick examination of a slide with fresh blood may fail to reveal any of these findings. A way to prevent diagnostic error is to establish, by some means, an artificial anoxemia on the slide. The slide of fresh blood may be sealed-in with vaseline and then examined a few hours later. Several other methods have been devised. A valuable one is to place a rubber band tightly around one finger, almost obstructing the circulation. After 3 to 5 minutes the blood is drawn from this extremely cyanosed finger tip. Either one of these methods may be necessary in order to make certain the diagnosis or exclusion of sickle cell anemia. Frequently more than half of all the erythrocytes will show sickling or other deformities. At times the phenomenon of sickling may be reversed by the introduction of an adequate amount of oxygen and a decrease of carbon dioxide. On autopsy all of these deformed shapes of red corpuscles will be noted in any organ, principally in the spleen, bone marrow, liver and brain.

The clinical brain manifestations may vary greatly, both in degree and type, subjective complaints and objective signs. A common symptom is headache which may be due to a variety of pathological disturbances within the cranium. The higher degrees of damaged blood elements may be responsible for headaches seen in several anemic states. When analyzing headaches as they pertain to the many possible organic diseases that could involve the brain, we find that it is not in itself diagnostic either of the type of lesion, the number or location. Involvements of the leptomeninges are prone to give rise to headaches. We do find ischaemias, thromboses and smaller hemorrhages within the meninges or their fluid spaces at autopsies. The headaches may be present for a time and absent for a more or less long

period. Dizziness may be mlid or of a more severe degree coming in spells. The dizziness may be due to focal involvements of certain areas in the brain with anemic or anoxemic states. Attacks of unconsciousness have been encountered. Some have been epileptiform in type and thus recurrent. Hemorrhages or lesions in or overlying the cerebral cortex would be especially likely to produce the epileptiform seizures.

A number of types of plegias have been described, probably hemiplegias being most usual. Strictly speaking, monoplegias in the extremities are seldom encountered. Various cranial nerve palsies may be present. In one of my cases, twelfth, seventh, fifth, third and fourth cranial nerve palsies were observed. Possibly any of the cranial nerves might be involved singly or in multiples, depending upon the cerebral localization of the pathological lesions. Aphasias have been reported by several authors. Two of my own cases presented striking speech disturbances, one recovering and the other not. Where the encephalon is involved increased reflexes often occur and at times a fully sustained clonus may be elicited.

If intracranial lesions are suspected, a spinal puncture is indicated. Bloody spinal fluid suggests hemorrhages in the subarachnoid space or within the ventricles. Massive hemorrhages are uncommon, minor ones being more prevalent. Thus the number of erythrocytes in the spinal fluid may be comparatively few. Very few cases with increased leukocytes have been recorded. Syphilis is definitely not a cause of sickle cell anemia and serological tests for same on body fluids are usually negative.

Diagnosis

As has been indicated the recognition or strong suspicion of sickle cell anemia should be decided by a close analysis of the history and clinical signs. However, the diagnosis may be made certain by the proper examination and evaluation of the blood findings. If necessary biopsied bone marrow may be examined for the characteristic red cells.

In the differential diagnosis, pernicious anemia may be recognized by the clinical findings, blood tests, high color index and especially the absence of free hydrochloric acid in the stomach secretions. Erythroblastic anemia and familial hemolytic icterus may offer more difficulties in the differentiation. Indolent leg ulcers, thromboses, siderofibrotic lesions and the characteristic changes in the calvarium described above may appear. Here again, even though there may be a somewhat similar blood picture the findings of sickle cells and other bizarre forms should aid in determining a positive diagnosis.

Pathology

A study of sickle cell anemia impresses one with the importance of the role played by the circulatory apparatus including the hemopoietic and destructive organs for the etrythrocytes. Thus the various pathological alterations in parenchymatous tissues are dependent upon a defective vascular supply.

It will be recalled that the brain has a rich blood supply. However, a large part of it is dependent upon end arteries. Thus if one or a few of the smaller vessels are occluded by thromboses a degeneration of nerve cells and fibers in the territory supplied by that vessel will occur. Capillary engorgements and congestions amongst nerve tissues have been observed many times. Many sickle cells and other bizarre forms of the red blood corpuscles may be seen within the vessels and in the Virchow-Robin spaces. With repeated bombardments over a long time, these brain areas will have developed fibrotic replacements and pigment deposits. The process of siderofibroses, so well described by Diggs,[14] may continue slowly over many years.

Early, persistent and striking tissue changes can be observed in the hemopoietic organs. The bone marrow is darkened in color and has capillary congestions with many sickle cells. Also various types of the abnormal or primitive erythrocytes are to be seen.

The spleen and the liver are enlarged in the early stages which persists for a long time. The liver is not reduced in size later. The spleen after some years becomes atrophic. Finally there is a destruction of the splenic tissues to such a degree that only a fibrotic mass or no spleen at all can be

found on operation or autopsy. Many reports bear witness to this statement.

There never has been an adequate explanation of many of the striking changes occurring in the cranial bones. The bristled appearance and the great thickening of the frontal, parietal, occipital and temporal flat bones cannot be explained by the blood forming or destructive organs for the erythrocytes.

Progress

Sickle cell anemia is a chronic, incurable disease usually running its course over a period of years. Possibly the majority of cases should be recognized in early childhood. Resistance to concurrent diseases is definitely lowered. Thus many patients make their exodus with secondary infections, chiefly in the respiratory system. There is no record of fully restored or cured patients. Regressions and recurrences are the rule, each phase covering long periods of time.

Treatment

Unfortunately there is no specific remedy for sickle cell anemia. Thus we have to rely largely on symptomatic therapy and protective advice. Every patient should be guarded against unnecessary traumas. Liver, iron, arsenious preparations, vitamins and transfusions have been resorted to. Prolonged rest at times is indicated. Splenectomy has been advocated with a number of experimental trials but in our opinion is never indicated. It is mentioned only to be condemned. Why operate to remove the spleen, when clinically on numerous occasions the organ has been completely obliterated or greatly reduced in size and yet the destructive progress of the disease continued unabated.

Summary

(1) Sicklemia, the benign state, is frequently encountered among people with negroid blood, ranging between 5 and 8 percent of all negroes in the United States. Fortunately sickle cell anemia, the malignant state, occurs only in a comparatively small percentage of these cases.

(2) Grave involvement of the central nervous system has been reported much less frequently than sickle cell anemia in general. However, closer observations may indicate many milder pathological lesions in the brain which might be placed on record. A state of multiple cerebral lesions is the rule for the cases reported in the literature.

(3) With the serious prognosis usually given, we can naturally anticipate that there is no real specific therapy. Possibly in the future a better knowledge of the modus operandi of the disease process might lead to some kind of preventive or specific treatment.

(4) It has been suggested that physicians and surgeons caring for patients with any degree of negroid blood be on guard for the possibility of sickle cell anemia, particularly when surgical operations are contemplated.

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The Psychic Trauma of Becoming Part of a Group*

LT. COM'D'R. HORACE G. MILLER
MC (USNR)

Anyone who comes into an unfamiliar group of people with strange rules, customs, and personal relationships will tend to feel insecure. This feeling is experienced in many life situations. When men enter the armed forces, the reaction to it can be observed with striking clarity. A certain number of inductees suffer psychic trauma and some suffer irreversible psychic changes on account of their inability to accept the feeling of insecurity incident to becoming part of a group. In time of war there are, of course, psychic casualties incident to traumatizing experiences in actual combat; the following discussion, however, deals only with the insecurity inherent in the unavoidable situation of entering a new world.

It is easy to accept our mental casualties as an unavoidable consequence of hurriedly creating a fighting organization from civilian personnel. It is easy to appease our apprehension over the situation by declaring it an inevitable part of making the world safe. This is the sort of rationalization that fond parents indulge in when they assure themselves that their carefully reared children really know how to behave, that they are remarkably nice most of the time, and that it is only with the added insecurity of company that they act unlike their real selves. Actually, however, times of added stress merely throw our basic inadequacies into sharp and accurate relief.

The process of transfer from a familiar to an unfamiliar situation occurs many times in an ordinary human life. It occurs when one gets married; it occurs when one leaves school for a job; it occurs when one leaves home for school; it occurs when one leaves the security of the crib and starts to toddle about in a world of giants. It occurs with its greatest impact at birth itself. The transfer of an organism from a more secure to a less secure environment is a basic life situation. The feeling of insecurity is a fundamental reality of life. Growth and change and the meeting of unfamiliar danger are as real and unavoidable as eating and breathing. Therefore it cannot be said that mental breakdowns come from insecurity, but rather that they come from the way this insecurity is met.

Under the impact of this unpleasant feeling of insecurity, any living organism tends to make more or less integrated movements toward safety. Mercifully, no one can remember just how he felt when he was a baby; there is sufficient evidence, however, to indicate that a baby's feelings are profound, and that he suffers an utter loneliness and fear that adults are protected against. Methods for mitigating this painful feeling are used again when he enters later groups; they come to be depended upon as long as they work, or can be made to seem to work. When a person becomes dependent upon a method, he hates to relinquish it, because to do so means that he must run the risk of encountering the original feeling in all its intensity.

Modern psychiatry places great emphasis on the importance of the sense of personal worth. Much depends upon the basis for this sense of worth. The first group a child enters is, of course, his family, and the attitudes and evaluations that succeed here tend to stay by the child for the rest of his life. However, the child does not appear in the first group by himself. He is ushered into it by his mother. Her attitudes toward him and toward this group are real to him, because it is she who first shields him, as an utterly helpless child, against the hazards of existence. If the mother has been reared as the center of her world, and if she feels that a sense of personal adequacy depends upon this relationship, she will pass this feeling on to the child, and will bend her efforts toward making him aware of this kind of love. Or, if the mother feels that

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* Delivered in Philadelphia, 18 May 1944, at the Centennial Meeting of the American Psychiatric Association, by Lt. Comdr. Horace G. Miller, M.D., USNR, U.S. Naval Hospital, Portsmouth, Virginia.

a sense of personal adequacy or goodness depends upon the acceptance of a certain pattern of behavior, she will pass this pattern on, and the child's acceptance of these standards will be bolstered by the fear of losing his mother's love if he is bad. A child thus conditioned seeks to grow toward the security of his mother's approval, and tends to reject as a part of himself all feelings or tendencies running contrary to the approved pattern.

Such a child grows with instilled patterns and feelings of personal value more or less firmly attached as a part of himself, and with many of his natural desires under control. This pattern assumes a quality of "rightness," unassailable by logic or reality. The idea of his sense of personal adequacy assumes paramount importance to a child reared in this fashion, and the world of external reality is a threat that must be appeased. The father, next to the mother the most significant person in this world of external reality, is seen only as something to be ignored, accepted with repressed resentment, or appeased by strict adherence to the "right" pattern. This process goes on until the impact of the real world is strong enough to break through the protective wall and demand recognition. For many people, this break-through never occurs; they are allowed to carry their protective pattern as long as they live. But for many young men of today, the challenge of authority and responsibility in the armed services is strong enough to obtain primacy. Psychic trauma thus occurs in many cases, and those who cannot make the readjustment become our psychiatric casualties. For this trauma, we cannot blame either the war or military ruthlessness. The error lies primarily in our belief that children need to be taught a pattern and given feelings of personal adequacy.

Children can be soundly reared without making pattern fundamental in their lives, provided they come to realize that not their personal adequacy, but the family organization, is the basis for their security and for the security of all the other individuals in this first group. They can come to have a feeling of adequacy not in their own right, not by resenting their inferiority to their father in all spheres except cuteness and dependency, but by accepting themselves as part of a group that gains much of its strength from this powerful creature, the father.

In spite of the importance that verbalization has come to have in our personal lives and our social framework, careful scientific work in the last few decades has emphasized the importance of the non-verbal conditioning of emotional processes. It has been found that animals can be conditioned to react to situations so that it is very difficult to change their pattern of behavior later to one that is more profitable to them. It has been found also that children are early conditioned to place their feeling of security in whatever part of their environment offers the greatest satisfaction of their desires.

It would seem that children can become dependent upon their feeling of adequacy, or upon different persons in their environment, or upon different human qualities, or upon word formulations themselves. These things are bad not in themselves but because through them dependency replaces real respect for the parents, and ideas become laid down in the cortex as patterns constricting the growth of the personality. But where the relationship of the parents is based on genuine mutual respect and on the recognition of something larger of which each is a part, instead of on a sentimentalized mutually dependent and possessive love, the child can be conditioned to accept this feeling provided no other adjustment is made possible for him. It is probably more painful to have to accept this nebulous reality than something more definite and concrete. However, children who have once accepted their relative inadequacy, and who have at the same time accepted the responsibility for their own sphere of action, will probably never face anything later in life that holds so great a threat to their opinion of themselves. On the other hand, any child who has been allowed to rely upon any other attitude or quality will always carry apprehension regarding his inadequacy and the feeling that

some human problems simply will not bear looking into.

Throughout the course of human history, there have grown up many formulae by which a person may be helped to accept his essential personal inadequacy while preserving the idea of himself that he has built up. All of these formulae have in common the acceptance of a larger principle of life that one must stand in awe of even though it cannot be understood. In the course of time, however, the part of a formula that satisfies the desire for a feeling of personal adequacy usually comes to be emphasized, while the part that leads toward the sense of honest humility and obligation tends to be glossed over.

Our scientific knowledge has progressed to the point where we can accept some of the realities that these formulae point toward. A new conception of human personality is now possible, one that can help us to free ourselves from domination by hydra-headed immature self-formulations, one that can help us to accept the struggles and sufferings and dangers that will necessarily accompany our reconditioning on a sounder basis for living.

To begin with, there is the true self. This is our basic animal nature, the animal needs that have grown out of the organization of protoplasm into human form. These needs are often poorly understood because of cultural distortion. That the true self has been called by the Latin word for "it" indicates the length we have gone to in our worship of mentation and the roundabout process we have had to go through even to recognize the existence of our animal nature.

Next comes non-verbal conditioning. This comes about as a reaction of the striving organism to its environment. It can be positive or negative toward other people and toward the principle of social organization. This conditioning does not come to us in the form of words; it is the same conditioning that other domesticated animals accept. It is not inherent in the organism; it is a relationship, and results from interaction. By the very nature of a child's early experience with the family group, the attitude toward the father image is an extremely important part of this unverbalized feeling.

Then we have the pattern of verbalized concepts, which people usually accept as part of their personality. Part of this pattern becomes the developing personality's idea of itself, and part of it becomes its idea of what it thinks it ought to be. This aspect of the cultural impact on personality has been described carefully, but always with the idea that it represents normality. It seems highly probable, however, that the internalization of this pattern of verbalized concepts (certainly in the extreme form in which we frequently see it) occurs only when conditioning toward the world of people is so inadequate that the self is left undelimited, untamed, undomesticated.

In the case of the soundly conditioned person, the cultural pattern is external, something that the person seeks to learn and to use as a tool for the better satisfaction of his living needs. In the unsoundly conditioned person, however, the pattern becomes something forced upon him to which he clings and with which he often identifies himself in order to control his animal nature. Thus the paradox of psychiatry and sociology can be understood. Democracy and freedom are possible and valuable only insofar as people have been soundly conditioned to accept their obligation to something bigger than themselves. When people value most their unrestricted freedom, they actually and necessarily adopt a strict and dominating control, either internalized in their cerebral cortex or externalized in the shape of ruthless masters.

Insecurity always exists when one enters a new group. Some degree of psychic trauma appears unavoidable, because the newcomer must lose some of his more immature pattern in order to accept his new relationship without too much conflict. Whatever one has become dependent upon will hamper this new adjustment. The willingness to accept, very early in life, the feeling of respect for something bigger than one can ever hope to understand seems to be the only attitude that will not constrict future growth and the acceptance of the world of reality.

Common Factors In Shock Therapies

L. J. MEDUNA, M.D.
Chicago, Illinois

At its inception, many advocates of shock therapy sought to distinguish between psychological and physical effects of the various shock-treatments which led to sharp differences among writers on the subject. Some believed that the mechanism is merely "psychological" in nature, like the fear present in the convulsive treatments or the increased accessibility of the patients to psychotherapy during narcotic and hypoglycemic treatments. Others maintained that the biochemical effects are the only curative factors and therefore, that any psychotherapy is unnecessary and useless. A third, and perhaps largest group of scientists combines shock-treatment with a form of psychotherapy, finding that they supplement each other, though they do infer that the "mental factors" differ categorically from the "physical" factors in the treatment.

It is not difficult to demonstrate that any form of psychotherapy is expressible in terms of learning and forgetting, exquisitely physiological processes which rest finally on conditioning. This latter is a well-known physiological process although its physical and chemical details are unknown. It would be vain, indeed, to neglect the use of psychotherapy, which though extremely delicate, is in the final analysis of the same order of phenomena as the more massive changes in the components of the blood or in the cortex itself.

As to the fear present in many patients before treatment and exaggerated or provoked in many by treatment, it seems redundant to state that this is a physical process which fits exactly into the general pattern of the other biochemical processes of the convulsive treatment.

The massive biochemical changes during shock are easiest to measure in the blood of experimental animals and patients, but before we enter into the discussion of these matters, I would like to make some general statements which are based on observation or are permissible inferences therefrom:

I. At this time we know of no useful shock or of any interference with the cerebral processes capable of interrupting the pathqlogical pattern of the mental processes which does not interfere, even if only for a few minutes, with the oxidative processes of carbohydrate metabolism. This refers to the accepted shock-treatments as well as to breathing of nitrogen or CO_2, to injection of cyanide and even to self-strangulation.

II. Insulin, being a powerful hormone, produces the same biochemical effects in every patient, if a sufficient amount is injected. Yet, only a certain category of patients benefits from the hypoglycemic condition and its accompanying biochemical changes. It is a fair assumption therefore, that the primary effects of the insulin are not the ones responsible for the cure but that the patient's response determines the result. Tietz's investigations confirm this. These significant responses appear about thirty minutes after the coma-dose of insulin has been injected and constitute the second phase of hypoglycemic shock. (Fig. 1.)

Figure 1—BLOOD

BLOOD-CONSTITUENTS	PROLONGED NARCOSIS	CONVULSIVE TREATMENTS		HYPOGLYCEMIC	
		PHASE I	PHASE II	PHASE I	PHASE II
SUGAR	UP	UP	DOWN	DOWN	UP
CO_2	DOWN	DOWN			
LACTIC ACID ~ KETOSIS	UP UP	UP UP	BELOW ORIG	DOWN	ABOVE ORIG UP
pH	ACID SHIFT	ACID SHIFT		ALKALINE SHIFT	ACID SHIFT
TOTAL FAT		UP	UP	DOWN	ABOVE ORIG
LEUCOCYTOSIS	+	+			+

These changes which are diametrically opposite to the biological effects of the insulin can be observed. The blood sugar rises, as does the lactic acid content of the blood. A slight ketosis appears. Total fat of the blood increases. An acid shift in the pH of the blood and leucocytosis appear.

These changes correspond identically to those provoked directly by the convulsive treatments in the first phase of these treatments. One can say that, as far as the biochemical changes are concerned, the convulsive treatments present the mirror picture of the hypoglycemic treatments. Furthermore, it seems probable that the relevant changes occur in the first phase in convulsive treatment and in the second phase in hypoglycemic treatment. This assumption is corroborated by the fact that the same biochemical changes occur during the prolonged narcotic treatment.

These uniform biochemical changes raise a question which may give some hint to a more thorough understanding of the processes involved. If we ask ourselves what conditions are characterized by the biochemical changes produced by shock therapy, we arrive at the following somewhat surprising conclusion shown in figure 2.

Figure 2—BLOOD

BLOOD CONSTITUENTS	IN SHOCK THERAPIES	IN DIABETES	SYMPATHICO-ADRENAL STIMULATION
SUGAR	INCREASE	INCREASE	INCREASE
CO_2	DECREASE	DECREASE	INCREASED METABOLISM
LACTIC ACID KETOSIS	INCREASE INCREASE	INCREASE	
pH	ACID SHIFT	ACID SHIFT	ACID SHIFT
TOTAL FAT	INCREASE	INCREASE	
LEUCOCYTOSIS	INCREASED LEFT SHIFT	LEUCOCYTOSIS	INCREASED LEFT SHIFT

The common biochemical changes, produced by all shock therapies are germane to two widely different conditions of which one is diabetes, the other, stimulation of the sympathico-adrenal system. The reference to diabetes must certainly be of some significance when we consider that a certain group of schizophrenic patients behave like diabetics in their response to insulin and to the Exton-Rose tolerance tests. The similarity between the diabetic-like response of schizophrenic patients before treatment and the diabetic-like effects of shock suggests the hypothesis that the diabetic-like behavior of schizophrenic patients in the acute phase of the disease may be but an unsuccessful defense against the disease itself. If this reaction is enhanced by the shock, the patient's chance of recovery is thereby increased.

The resemblance between the common effects of shock treatments and the consequences of sympathico-adrenal stimulation is certainly more than accidental, for we know that only those patients recover during the insulin treatment who produce an increased amount of adrenalin during the hypoglycemic shock (Tietz, Jahn). The parallelism between diabetes and sympathico-adrenal stimulation is established by the fact that both conditions imply a shift of the equilibrium from the vago-insulin to the sympathico-adrenal system. We are hardly aware of the importance of adrenalin in the carbohydrate metabolism. Adrenalin is easily oxidized to the unstable quinone form which upon further oxidation and rearrangement gives rise to the redox system adrenochrome. This substance is autoxidizable and will mediate certain biological oxidations in vitro. It has some role in the oxidation of hexosephosphate and glycerophosphate phase but none in the lactic acid oxidation.

From this point on, more and more of our questions remain unanswered. Many experimenters have been interested in the biochemical changes in the blood during shock-therapy but only a few approached the problem in the brain itself. We are indebted to Davis, Marshall, McCulloch, Nims, Roseman, Stone and Welsh for the table shown in figure 3.

Figure 3—CORTEX

	INSULIN HYPOGL.	CONVULSIONS CAMPHOR-METRAZOL	ANOXIA (LOW PRESS - NITROGEN)
pH	ALKALINE STRIKE FOLLOWED BY SLOW ACID SHIFT (MARSHALL-MCCULLOCH-NIMS)	ALKALINE STRIKE FOLLOWED BY SLOW ACID SHIFT (MARSHALL-MCCULLOCH-NIMS)	ALKALINE SHIFT (STONE-MARSHALL-NIMS)
LACTIC ACID		INCREASE (W STONE)	INCREASE (")
PHOSPHOCREATIN		DECREASE	DECREASE (")
INORG. PHOSPH.		INCREASE "	INCREASE (")
O_2 TENSION		FALL BEFORE FIT, INCREASING AFTER (DAVIS-MCCULLOCH-ROSEMAN)	DECREASE
ACETYLCHOLINE	DECREASE (J WELSH)		DECREASE (J WELSH)

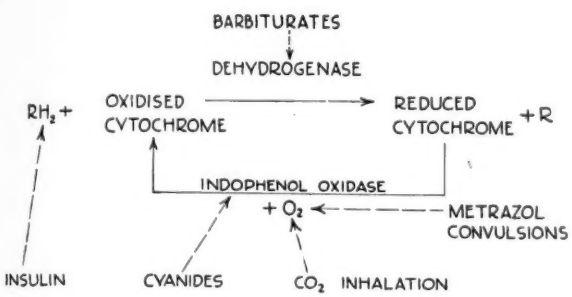
These investigators furnish the following data: The pH of the cortex shows similar alkaline shift both in hypoglycemic and con-

vulsive treatments and a somewhat slower acid shift during relative or absolute anoxia. Lactic acid and inorganic phosphorus increase during convulsions and anoxia. The increase of inorganic phosphorus explains itself by a decrease of phosphocreatin.

A relative anoxia of the cortex appears before, during and after convulsions and a similar condition prevails, as a matter of course, during anoxemia. The production of acetylcholine is decreased both in hypoglycemia and anoxia.

It seems certain therefore, that any means of treating schizophrenic conditions to be effective must interfere with some phase of the carbohydrate metabolism. From human experiments and investigations of the blood we cannot know which phase is disturbed but it is certain that different agents act in different ways. Most of the questions pertaining to the particular phase of the carbohydrate metabolism affected by our treatment cannot be answered at all and some of them only tentatively. (Fig. 4.)

Figure 4



An attempt to do so is shown in figure 4, in which a skeleton of the carbohydrate metabolism is given. Concerning the role of some barbiturates, Quastel determined that their sedative effect is based on inhibition of the carbohydrate metabolism which is achieved by poisoning dehydrogenase. The cyanides seem to poison indo-phenol-oxidase. These two facts are fairly well established. Pure nitrogen and 100% CO_2 inhalations exclude the O_2 necessary for oxidation of the reduced cytochrome oxidase. Metrazol convulsions speed up the nervous activity to such a level that a relative O_2 lack is produced. Insulin robs the brain of the only effective substrate, carbohydrate itself.

This bird's eye view of the changes produced by shock-treatment, scanty as it is, teaches one thing. Any new and better treatment of the functional psychoses does not need to rely on unassisted chance as heretofore. A treatment is needed which interferes with the enzymatic system of carbohydrate metabolism. This interference must be reversible at will and must be of a type which does not interrupt the carbohydrate metabolism of the heart or other vital organs.

Socio-Psychiatric Aspects of War and Post-War Neuroses

ERNEST HARMS
New York, New York

In the past I have referred to the sociological position of the psychiatrist as the "first-aid station behind the battle-front of the mind." However, the role which the psychiatrist plays in this second world war makes that description inadequate. His task now lies at the very front line and imposes upon him the greatest responsibilities.

Entirely new methods of rehabilitation have been developed, with the aim of returning to military service, within the shortest possible time, those men whose neuroses have rendered them temporarily unfit. Frequently, however, the problem is not as simple as that. Soldiers who become mentally ill on the battle-front cannot always be rendered fit again for combat duty. Not only because mental illness is usually a protracted disease, but also because most psychic disturbances arising in modern warfare are severe mental injuries leaving the victims invalids for prolonged periods. For most of them the war is over. Their illness, like that of physically severely wounded soldiers, lands them in a post-war situation, even while the fighting is still going on.

Above and beyond his work in the induction service of sifting the mentally ill and the individuals likely to break-down, out of the armed forces and rehabilitating the men who develop neurotic symptoms during training, the really active relationship of the psychiatrist to the fighting men starts where the soldier's military usefulness ends. The psychiatrist already is performing his post-war function.

The work of the psychiatrist is no less important than that of the surgeon, and no specialty has a graver responsibility towards the problems the war has created. It has been stated[1] that 63,000 mental patients of the first World War still have to be cared for in this country. This suggests the tragic range of the problems of mental abnormality which must be anticipated by reason of deeper involvement in the present conflict. The full import of these problems will become apparent only when the whole mass of the American Armed Forces has been reinstated in civilian life, but they have already assumed a serious aspect in the increasing stream of mental patients being returned.

We cannot treat these war neuroses most effectively by concepts generally applied to neuroses and psychoses in time of peace. Diseases originating in the everyday life of the community may be cured by proper understanding of everyday conditions but conditions of war create quite different disease patterns. To find the right cure it is necessary to understand the bases and dynamics of the exceptional circumstances in which the illness was created. I believe that we will have to change our concept of abnormal psychology and psychotherapy in regard to this socio-psychiatric aspect. We will have to give greater consideration to the distinction between war neuroses and peace neuroses; between war psychotherapy and peace psychotherapy, not only for theoretical instruction, but also from the standpoint of treatment. If we do not look at this problem from the proper viewpoint, we may find ourselves unable to cope with the deeper fundamentals of the enormous task which we shall have to face.

War, whenever and wherever it appears, is a social phenomenon. Its results, also, are social expressions. The psychological elements in these results, whether normal or abnormal, must likewise be viewed as socio-psychological. Frequently we overlook their socio-psychological character because it is too remote from the social concepts which since the end of the last century have been the basis of American communal thinking. This is the condition which keeps us unaware of what is affecting us mentally. It is also the chief factor in the majority of war neuroses.

Such problems as these belong inherently to the subject of social psychiatry. We may believe ourselves completely aware of what the war means to us and yet not realize its deranging effect upon our minds (felt at first only in our subconscious), unless we avail ourselves of a scientifically determined method of examining our socio-psychological relationships. We all know that America's mental attitudes have been trained to resist any and every war, pre-Pearl Harbor political utterances to the contrary notwithstanding. The inner mental attitude of the mass of people on this continent is profoundly opposed to war. The young people, who are chiefly concerned in fighting the war, were brought up in a spirit which essentially opposed the militaristic idea of individual sacrifice demanded by war.

This conflict between totalitarian and democratic conceptions is the fundamental problem of our youth in wartime. The individual effort demanded of each freedom-loving American soldier is far greater than that required of a youth trained for twenty years under Hitler or Mussolini in the ideas of personal sacrifice for a collective group. And this preliminary preparation cannot be compensated by a few months of military training. Though the American soldier has proven to be a better fighter than all the fascist soldiers of Italy, Germany and Japan, the psychological strains of war are, nevertheless, more difficult for him, because in their deepest aspect these strains are in conflict with his social and psychological concepts. There is a tendency to overlook this background in viewing the problem of

war. However, it must be taken into account if we are to correct those difficulties which will confront us in increasing numbers and which will become even more prevalent with the cessation of hostilities. This additional strain will still exist when he returns to civilian life, particularly since civilian life has been modified by the effects of war.

In considering the disparity between the concepts underlying our democratic mental life and the actual nature of modern war the question presents itself: What, from a wide-range socio-psychiatric view, are the most psychologically dangerous elements of war? We generally hear about war neuroses, exhaustion, depressive elements and diseases traceable to injuries or neurological causes. The most serious causes, however, have until now largely escaped observation. They are the conscious and especially the suppressed fear of death and the feeling of guilt, also less often conscious than suppressed.

Though these elements are obvious and natural, they are not always taken into consideration. One author has tried to show that Freud's death urge is a factor in war neuroses.[2] Unfortunately he has not taken the further step of pointing out the role played by regression into the subconscious in the face of war experiences. The entire Freudian concept, upon which this author's viewpoint is largely based, would, but for this omission, have come forward as an important contribution to the interpretation of war neuroses.

It cannot be denied that modern warfare inevitably arouses fear of violence and death in the psyche of even the sturdiest. Psychologists have to take such factors as seriously as they do others not openly admitted by conventional patterns. The effects of the death fear in individuals in dangerous professions have been observed. The behavior of circus acrobats provides a good example. It is well known that acrobats start upon their perilous job calm and prepared but shortly after the life-endangering performance is over, there follows a psychological crisis. This reaction may provide a basis for understanding many abnormal reactions which will be encountered after the war is over, reactions which may not show themselves until years after peace is restored and which will create considerable trouble in the form of post-war neuroses.

This writer would not attempt to posit such a definite prediction had he not met with similar experiences in the period following the last war. Experience as counselor to medical students has been referred to in a paper published previously.[2] Numerous cases in which war experiences, months and even years later, led to most unfortunate depressive, phobic and even psychotic disturbances were observed. Although psychoanalytic concepts were at that time less developed the relation to war experiences not admitted to consciousness was evident. Today we have many cases of war neurosis and the various psychopathic disturbances resulting from strain and exhaustion. In the mass of psychic disturbances which we must now expect, these factors will have much less importance than those suppressed elements of fear, particularly that of death, which a soldier has to overcome, or suppress, during combat duty.

Suppressed fears may have an influence which appears even in active duty or may call forth the outbreak of a latent mental ailment. However, the cases of mental disease resulting from such suppressed elements will be revealed after the soldiers have been freed from the discipline of service and active duty and a civilian environment permits these suppressed negativistic psychic contents to come to the surface of their mental life. Great numbers of veterans will show more or less serious psychic disturbances, especially of a social nature, relating to the difficulties of adjusting to their families and to a civilian environment in general. The types of war neuroses resulting from suppressed fear of death will tend to appear soon after discharge and their importance will gradually diminish with the passage of years. They will become the more apparent the farther the actual experience which caused them, moves away in the memory of the veteran.

Another major factor in severe psychic

disturbances resulting from war experiences is the suppressed feeling of guilt. While the fear element stems directly from actual war experience, guilt feeling arises from the conflict between peace-time standards and the necessities of war. Conscientious objectors who solve this conflict by refusing to take part in war activities seem to escape psycho-pathological manifestations. But among those in military service there have been quite a number of cases in which suppression of this conflict has resulted in mental breakdown. The breakdowns resulting from suppressed guilt feelings proceed in reverse order to those traceable to the suppressed fear of death. Guilt feelings come forward increasingly as the actual war experience is pushed aside by the renewed civilian life. I was able to observe in myself that guilt feelings were stronger six years after World War I, and that the latest date they invaded my mind was about ten years after the close of that war. I also had the opportunity to make similar observations upon a large number of former German soldiers.

Thus far I have presented the traumatic aspect of this type of war and post-war neuroses and the causes which create them. The various specific and characteristic forms in which they appear have not been considered. A common feature of these "death fears" and "guilt feelings" is that their expression is blocked, since they are opposed to the ideals of a good soldier and true son of the nation. We know that such conventions interfere with and distort the actual character of these two elementary natural forces, which have the right to exist in the eyes of a psychologist but not before those of a citizen or a soldier. Therefore to confess them, even to oneself, presents that pathogenic factor which enhances the tendency towards suppression and regression and makes it so difficult to bring them back and up into consciousness. Therefore fear and guilt symptoms appear rarely in the somatic picture and then only in severe psychoses where the wall between consciousness and sub-consciousness is actually broken or destroyed. As in all socially determined psychoses, they appear in many general and specific phobia pictures, general and specific depressive and manic symptoms, various minor and major behavior disorders up to severe psychotic states. The actual nature of the illness can be determined only as the social pathology of the war experience is unveiled. Dealing with members of the armed forces, it is not difficult to venture a diagnosis. However, it would be wrong to hazard a guess after the first examination and to omit a careful investigation into the actual background of the neuroses of the individual.

This brings me to the major point of this paper concerning the general technical investigative and therapeutic problem involved in war neuroses: My remarks here stem from actual experience with the task of attending a person honorably discharged from the Army because of a mental condition and it is the findings of this experience which lead to the following conclusions:

To investigate adequately the regressed hidden background of a war neuroses and to initiate proper therapy, an analytical process is needed, not necessarily of the type commercially patented, so to speak, by the Freudian school. There are a number of leading non-Freudian psychotherapeutic groups which have developed equally valuable analytic procedures. I refer to the followers of such men as Stekel, Jung, Schultz, Bjerre, Joergenson and Boudouin. All these schools emphasize the need of analysis for the elimination of the unconscious causes of minor and major neurotic states. In view of the many thousands of soldiers in whom difficulties of this sort should be investigated and, if necessary, dealt with, before their return to civilian life or during the early period of their re-adaptation, there should be an obligatory psycho-therapeutic quarantine for all members of the armed forces prior to their discharge. Much trouble and later medical care for discharged veterans could be saved by this means and much unhappiness and social difficulty avoided.

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Neurological Clinical Pathological Conference

of the

Cincinnati General Hospital

CHARLES D. ARING, M.D., Editor

CASE NO. 163578

Presentation

A 27 year old, white, married woman, the mother of three children, was admitted to the Cincinnati General Hospital on September 26. Her past history was normal except for a long-standing acneform eruption over the scapular regions. On the morning of September 17 she had awakened with severe pain in the mid and low back. The pain thereafter was constant, tending to radiate laterally around the left flank. It required considerable analgesic medication. She observed that urination was less frequent since the onset.

She was admitted to another hospital on September 24, where the main finding was an indefinite mass in the left kidney region which was tender. In roentgen studies a small, rounded shadow was seen on the left side of the pelvis, in line with the lower end of the left ureter. Its shape suggested that it might have been a phlebolith. The diagnosis was made of ureteral stone with possible hydronephrosis.

Cystoscopy was planned for the morning of September 26. However, on the night preceding the proposed cystoscopy, the patient's temperature rose and on the morning of the 26th was 102.6° F. It was found that she had developed overnight a flaccid paralysis below the waist. All reflexes below the level of D-8 were absent. Retention of urine had developed and an enema was retained. There was slight diminution of touch perception in the lower extremities but no other sensory change. There was rigidity of the neck and the patient complained of headache and appeared quite ill. At the other hospital a tentative diagnosis of poliomyelitis was made and the patient was transferred here.

On admission to the Cincinnati General Hospital the significant findings were: Malaise, neck rigidity, numerous small pustules over the posterior thorax, an extremely tender spine with maximum tenderness of the 5th, 6th, 7th, and 8th thoracic spines, where light percussion resulted in excruciating pain. There was a flaccid paralysis of the lower extremities with absence of all superficial and deep reflexes below D-8. Sensory examination was difficult because of some lack of concentration due to pain. However, it was evident that there was diminution in sensation below D-10 bilaterally with a band of hyperesthesia between D-7 and D-10. These levels, determined by pinprick, were confirmed by the use of ice. The bladder was moderately distended. Operation was performed on the evening of September 26.

Laboratory Data: The temperature remained around 102 degrees F. and the pulse rate around 100 through the day of September 26. The blood pressure was 140/80. In the blood there were 12,600 white cells per cmm. and 3.6 million red cells, the hemoglobin was 11 grams. Urine obtained by catheterization was normal. A blood Kahn was negative. Nothing grew in a culture of the blood. Roentgen studies of the thoracic spine and of the chest were normal.

Lumbar puncture revealed an initial pressure of 155 mm. of water and yellow fluid was obtained. Following the removal of a small amount of CSF the pressure dropped to zero. Coagulation of the CSF occurred before a cell count could be done. The total protein content was 1200 mm. per cent, the sugar 64 mg. per cent, the chlorides 612 mg. per cent. The CSF Wassermann was negative. A smear and culture of the CSF was negative.

Differential Diagnosis

Dr. I. Mark Scheinker: A point of reference is September 17, on which day the patient awakened in the morning with unremitting, severe pain in the mid and low back, which radiated laterally around the

left flank; it was of sufficient severity to require analgesic medication. This symptom reminds me of radicular pain, which may result when the posterior roots are involved by a disease process. In the case under discussion one may reasonably consider the possibility of extramedullary tumor, with compression of the dorsal roots as an early manifestation.

Eight days after the onset of the radicular pain there suddenly occurred the signs of transection of the spinal cord, associated with partial or complete dynamic block. There were fever, rigidity of the neck, and headache.

The segmental localization of the lesion is not difficult. The level of disturbance in sensation up to the seventh dorsal segment points clearly to the site of the transverse lesion. The chronologic development of clinical symptoms is generally the most reliable aid in determining the intramedullary, extramedullary, or epidural localization of a pathologic process. The earliest neurological manifestation, which in this case was the onset of radicular pain eight days prior to the development of the transection, seems to point to an extramedullary site for the lesion. Presumably the process originated extramedullarly, compressed posterior roots and blood vessels supplying the cord, progressing to compression of the cord itself and ending in complete transverse lesion.

What is the nature of a lesion localized in the epidural space, that may produce apoplectiform onset of a transverse cord lesion, and cause partial or complete dynamic block? The most frequent process is associated with tuberculosis of the spine. Pott's disease should be considered as it is one of the relatively frequent disorders which attack the epidural space and produce transverse lesions of the cord. Caseation of the vertebrae, which is an extremely chronic process may remain symptomless for a time. The thinned vertebral body may collapse suddenly and direct compression of the cord produce a sudden transverse lesion as in any dislocation of the vertebral column.

Against tuberculosis is the history, the normal roentgen findings, and the fact that in adults, tuberculosis of the spine is an extremely chronic process and the central nervous system is implicated more slowly. The tuberculous infection usually extends from the body of the vertebra directly to the epidural space and results in formation of granulomatous tissue. The cord symptoms in tuberculosis as a rule are not the result of angulation of the bony canal, which usually takes place slowly enough for compensatory adjustments to occur. Rather epidural pachymeningitis develops, which leads to strangulation of the radicular vessels and hence to circulatory disturbances of the spinal cord. This chronic process is characterized by slowly progressing spastic paraplegia, and in the terminal phase flaccid paraplegia supervenes.

Less frequently observed is the acute process known as spinal epidural abscess. Frank suppuration in the epidural space may develop as a metastasis from a localized pyogenic infection elsewhere. Rarely may acute osteomyelitis of the spine result in epidural suppuration by extension. Chills, fever, and leukocytosis develop early. The neurological findings are those of a localized spinal compression. Root pains, motor and sensory disturbances below the level of the compression, and at times rapidly progressing paraplegia over a period of 24 or 48 hours may be observed. The latter is probably due to interference with the blood supply of the cord as the vessels traverse the epidural space. Evidence of infection outside of the nervous system usually may be uncovered. My final diagnosis is thoracic spinal epidural abscess.

Clinical Diagnosis.

Epidural abscess, mid-thoracic region.

Doctor Scheinker's Diagnosis:

Thoracic (D 6-7) spinal epidural abscess.

Post-Operative Diagnosis:

Epidural abscess (staphylococcus aureus), thoracic 5, 6, 7, and 8, probably metastatic from acneform eruption of skin of superior dorsal thorax.

Discussion of Pathology

Dr. Joseph P. Evans: In this instance we have no autopsy material to present, but rather a happy operative result since this patient has gone on to an almost complete recovery.

Discussing this case from the pathologic point of view, I should like to recapitulate a little and re-emphasize some clinical features. You will recall that her difficulties began about a week before entry into another hospital. While there she developed overnight a transverse myelitis and was sent to this hospital as a possible case of poliomyelitis. The significant points on admission were the history of severe back pain with radicular distribution, the sudden development of a transverse lesion of the spinal cord, the presence of fever, an increased white blood cell count, and the presence in the mid-thoracic region of considerable tenderness on percussion over the thoracic spine. Cerebrospinal fluid studies showed evidence of a manometric block and also revealed a high protein content in the cerebrospinal fluid.

Her condition was recognized on the basis of the history and physical signs as one of spinal epidural abscess, and she was treated as a surgical emergency. She was operated upon about eight hours following her admission to this hospital.

In the initial lumbar puncture done before operation, we suspected the diagnosis of epidural abscess, and we performed the tap extremely carefully. We aspirated each step of the way looking for pus and did not go through the ligamentum flavum or the dura until we were sure there was none present where we were tapping. Meantime she had been placed on sulfonamides. The paraplegia persisted and on September 28, two days postoperatively, lumbar puncture was again done carefully. We found that the protein of the cerebrospinal fluid had dropped from 1200 to 365 mg. per 100 cc., so we had reason to feel she had had relief of the mechanical block. A later puncture revealed normal dynamics and we thought the failure of neurological relief was due to the fact that she had sustained permanent damage of the spinal cord.

Laminectomy was carried out on the evening of admission, the incision centering about the sixth thoracic vertebra, which was the point of maximum tenderness. As soon as the spinous ligament was incised on the left side, pus welled out in quantities. Exposure of the spinous process was then continued, and the laminae of D-6 and 7 were removed, pus escaping constantly. The chronic granulation tissue in the epidural space was then cleaned away, and when it was evident that pulsation of the dura was still not obtained, the removal of laminae was carried one segment higher and one segment lower. When pulsation of the dura was assured, the operation was terminated. A small catheter had been passed upward for three to four segments and downward for three to four segments without solid obstruction being met.

The bone throughout appeared entirely normal. The pus which escaped from the epidural space was under increased pressure. On removal of the sixth and seventh laminal arches, there was found chronic granulation tissue, obviously of long standing.

The granulation tissue appeared to be limited to the posterior space. It was separated from the dura with some difficulty, but eventually the entire posterior portion of the dural sheath was freed. It was then possible to see pulsation, and it was also possible to pass a catheter freely in the extradural space, as already has been noted.

From the pus recovered at operation, there grew a culture of staphylococcus aureus. Sulfathiazole was begun in large doses immediately before operation and was continued for some ten days thereafter. A month after operation, the patient had no return of voluntary movement in the lower extremities. We felt then that the signs were compatible with anterior spinal artery thrombosis, and became pessimistic about her outlook. About six weeks after operation, on the day we were going to inform her that she would never regain movement of her legs, it was noted that she moved her right foot voluntarily. This improvement continued, and after four months, she returned to her home in Georgia. She was spastic and had bilateral extensor responses.

On October 24, 1942, eleven months postoperatively, she wrote us:—"I am almost as good as new. I can walk and go wherever I wish providing it is not too far, but my old left leg is still a little stiff in the knee and

instep. I think by spring I can walk without my stick."

On September 13, 1943, she wrote that she "was feeling O.K."; that her back did not bother her anymore and she was able to do the housework but the left side remained stiff and that her bladder "acts freely but without control."

The urgency of surgical treatment in these cases must be emphasized. I think it might be somewhat loosely stated that the rate of recovery in such cases is about inversely proportional to the square of the delay. This is merely a crude way of stating that the hours lost before operation are spent as days and weeks in recovery thereafter. In this particular instance a month passed before she showed any signs of return of motor function; the return of strength thereafter was fairly rapid and at the time of discharge from the hospital four months later she was still spastic and demonstrated extensor responses on plantar stimulation.

There is no unanimity of opinion as to the nature of the pathologic process responsible for spinal epidural abscess. It is rather generally agreed that the infection in the epidural space is of metastatic origin from infection in some other part of the body. Our patient had acneform pustules over the shoulders, and it is presumed that this was the original site of the staphylococcus infection. Some individuals, notably Browder and Myers,* believe that in most instances infection of the epidural space is derived from osteomyelitic involvement of the vertebrae.

Because of the structure of the spinal epidural space, the pus tends to accumulate in the thoracic region, or secondarily in the lumbar space. The bulbous enlargement of the cervical cord seems to prevent the ascent of pus freely into the cervical region, though cervical epidural abscesses have been described. The attachment of the dura at the foramen magnum of course limits the epidural spread cranially.

The staphylococcus is the usual organism recovered from such lesions, though the hemolytic streptococcus has also been reported, as has been on rare occasions the colon bacillus and even the gonococcus. The virulence of the organism must usually decide the rate of development of the cord lesion. The process may be either acute or chronic, and in the case of the latter there may be abundant granulation tissue present in the epidural space, with purulent material sometimes superimposed. The bathing of the nerve roots in pus no doubt accounts for the radicular pain and possibly also to some extent at least for the local tenderness in the region of the infection.

The mortality of untreated cases is 100 per cent because they are subject to generalized infection of the skin, or of the genito-urinary system following development of the transverse lesion of the cord. In cases that survive, the presence of infection elsewhere in the body tends, of course, to impair return of neural function. In this particular case decubiti developed which required drainage as late as two months following operation.

The imperative points to bear in mind are the development of back tenderness and radicular pain in association with signs of infection, which should suggest spinal epidural abscess. It is not unwarranted to ask that the condition be recognized before the onset of either neurologic transection or complete manometric block. The establishment of the diagnosis demands immediate operative intervention with wide exposure of the epidural space and the establishment of free drainage. Recognition of the disease depends in greatest part upon the awareness that such a condition exists.

Dr. George L. Engel: When did her temperature return to normal?

Doctor Evans: She had decubital ulceration which required drainage two months after operation. She had fever all that time.

Doctor Engel: Do you think that factor had anything to do with delay in recovery.

Doctor Evans: Generalized infections of any sort will interfere with return of spinal cord function.

Doctor Engel: Then it may be well to guard prognosis until signs of infection have disappeared.

* Browder, J. and Meyers, R. Pyogenic infections of the spinal epidural space. **Surg.**, 1941, 10: 296-308.

Book Reviews

THE SHAPING OF PSYCHIATRY BY WAR. By Brigadier John Rawlings Rees, New York, New York. W. W. Norton Co., Inc., 1945.

This work by the consulting psychiatrist to the British Army reviews the function of psychiatry in war and suggests its role in the peacetime ahead. It is, therefore, requisite to the satisfactory indoctrination of all medical officers in the Armed Services regardless of what branch they serve, indispensable to social workers, administrators, employment managers, and personnel counselors, and invaluable in aiding the layman to deal discerningly with the veterans' problems and personality changes evolving from the stress of war.

Keenly aware of the social aspects of psychiatry, Rees stresses the importance of morale in both military and civilian life and predicts the significance of psychiatry in dealing with the problems of the mental health of communities and nations. He emphasizes the need to develop the combatant spirit necessary to establish the values for which we fight. That many of the chronic neurotics are competent to contribute to the war effort if they are kept stable and fit is proven by the resultant success of the following experiment in England.

Men constitutionally predisposed to neurosis were drafted into labor companies run on a basis of modified military discipline and organized to help the individual farmers and agricultural committees responsible for increasing farm products. When the men had been properly selected, they worked well, were sick infrequently, and maintained high morale. Even though the experiment did not produce cures, it provided a satisfactory working environment in which neurotic men contributed to the war effort without subjecting themselves to stress.

Another practical test proved that fifty percent of the men who, after having been treated in special neurosis centers, were declared unfit for return to military duty except in special occupation continued to give good service without development of nervousness, sickness, or disciplinary trouble in jobs arranged for them according to their individual capabilities.

Contrary to the former belief that dull men make good soldiers, it has been found that the stress of war and its increased tempo demands men of high intelligence. The modern infantry requires men capable of learning many weapons and mastering skills that are not only impossible for a dullard but the taxing demands produce a feeling of inferiority and subsequent state of anxiety. In England there has been a wide utilization of the principles of limited service due to the different manpower positions. The Canadian Army, adopting the principles of progressive schools, has a three-speed army training program, in which the average, the below average, and the above average reach the highest degree of competency by working in accordance with the individual ability and speed of each group, thereby insuring better training and improved morale.

Dr. Rees laments that there are still people who believe that no one should be allowed to break down. Belief that courage or cowardice are alternative choices is, according to him, a reflection on our failure to educate sensibly the laymen and even the professional therapists. Although the problem of our ever being able to resolve completely the management of anxiety and fear is a residual one, we can be encouraged by the advance in thinking since the last war.

To prevent infection of anxiety when a man breaks down, Rees advises knocking out the man with sedatives if sympathy and friendly firmness are ineffective. Whether it is the doctor's work to distinguish between fear and cowardice is an issue still unsolved. Since physical signs of anxiety are difficult to affect, most people are hesitant to label a man exhibiting them, a coward.

Louis A. Schwartz, Lt. Comdr., MC—USNR
Great Lakes, Illinois

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